

Message from the Assistant Administrator

am pleased to report on NOAA's National Ocean Service (NOS) and to share with you my enthusiasm for the challenges ahead. Thirty years ago, NOAA was created to provide "... for better protection of life and property from natural hazards . . for a better understanding of the total environment . . . [and] for exploration and development leading to the intelligent use of our marine resources." NOS, whose roots actually go back to President Thomas Jefferson's creation of the Coast Survey office in 1807, has evolved into the nation's principal

advocate for coastal and ocean stewardship.

The past year has brought increased attention to the oceans. The Oceans Act of 2000 was enacted, establishing a high-level commission to make recommendations for a coordinated and comprehensive national ocean policy. Additionally, the President directed federal agencies to strengthen the management, protection, and conservation of ocean and coastal resources through a system of marine protected areas. Federal agencies were also directed to develop the long-term strategy for a new era of

ocean exploration. And last, an interagency Committee for the Marine Transportation System was created to look at ways to improve the U.S. system of waterways, ports and their intermodal connections, vessels, vehicles, and system users. These efforts will have a major impact on NOS and on America's relationship with the oceans in the decades to

Over the past year, the National Marine Sanctuaries Act was reauthorized. strengthening NOS' efforts to manage 13 marine sanctuaries that protect over 18,000 square miles of

ocean and coasts. This Act also authorized the designation of a Northwestern Hawaiian Islands coral reef reserve that would be managed by NOAA. Finally, the Act, in memory of the former NOS Assistant Administrator, established the Dr. Nancy Foster Scholarship Program to recognize outstanding scholarship in marine biology, oceanography, or maritime archeology and to encourage independent graduate-level research in these fields.

This is not a comprehensive report of NOS' accomplishments over the past year. Rather, it highlights some of the significant accomplishments of the people at NOS who help ensure the environmental protection and economic prosperity of our nation's coastal areas. Please take a few moments to learn about NOS and join me in working toward realizing the significant ocean conservation milestones that began

Margaret A. Davidson

Assistant Administrator for Ocean Services and Coastal Zone Management

National Ocean Service's Primary Goals

| | te a more |
|---|-------------|
| | |
| navigation by communities' preservation and and risks to people, inclusiv | e, internal |
| improving navi- ability to adapt restoration of the economy, and corpora | ate culture |
| gation products to changing con- the U.S. coastal natural resources that is | results- |
| and services in ditions, resulting and ocean associated with driven, | service- |
| response to in a balance of environments. natural and orienter | d, science- |
| changing tech- environmental human-induced based, | and |
| nologies and and economic hazards, including respons | sive and |
| customer needs. benefits. climate change. adaptive | e to change |

Navigation

n the last five decades, the average size of ships has doubled and seagoing commerce has tripled. Half of the cargo transported through U.S. waters consists of hazardous materials. The National Ocean Service (NOS) provides the nation with the information. tools, and services necessary for safe, efficient marine navigation. This includes upto-date paper and electronic nautical charts, shoreline surveys, and information on water levels, currents, and weather. NOS also maintains the National Spatial Reference System-a set of geographic coordinates that support land surveying, navigation, mapping, and the users of the Global Positioning System (GPS).

Real-Time Navigation Information Expanded NOS' Physical Oceanographic Real-Time System (PORTS™) supports safe and costefficient navigation by providing shipmasters and pilots with accurate real-time information required to avoid groundings and collisions. Rhode Island's Narragansett Bay was added to the list of U.S. harbors with full PORTS™ installations.

Advanced Surveying Used in Unique Applica tions. In Texas, NOS supervised a GPS survey to verify positions and heights in the Harris-Galveston Coastal Subsidence District to monitor subsidence, which contributes to storm flooding. In Florida, NOS applied GPS surveys to restore water flow Wyoming, NOS used precise height measurements to establish a baseline for monitoring changes in the Yellowstone Caldera, an active volcanic area within Yellowstone National Park, to forecast future volcanic activity.

NOS Surveyed Navigationally Important Areas. NOS developed a plan to address the nearly 500.000 square nautical miles of navigationally significant areas in need of updated hydrographic surveys to ensure safe transportation in U.S. waters. These areas are in addition to the "critical survey backloa" identified in 1994. By rapidly expanding contracts with the private sector (more than \$15 million awarded in 2000), as well as using

reduced the critical backlog by more than 1,450 square nautical miles this year.

New Charts Enhanced

Safety in Alaska. In late 1999, the small cruise ship Spirit of '98, carrying 120 passengers, struck a rock in Tracy Arm, AK. To protect Alaska's environment, economy, and visitors, NOS produced four new Alaskan nautical charts and continues to update Alaskan hydrographic surveys. The new chart for Tracy Arm, produced in record time, provides better safety for cruise ship traffic with its greater detail.

Monterey Bay Vessel Traffic Plan Approved. The International Maritime Organization gave final

Bay Sanctuary Vessel Traffic Plan off central California. NOS played a key role in establishing and charting the new routes, which will better protect the marine

approval to the Monterey

sanctuaries on the California

NOS also implemented the

Weekly Update Service for

coast and facilitate safe, efficient transportation in this heavily traveled corridor. Web-based Chart **Ordering System** Launched, NOS launched the business-to-business e-commerce site: www. nauticalcharts.gov. Authorized chart agents can now order a variety of NOAA charts and publications over the web, including the new print-on-demand charts.

provide critical chart corrections to safeguard marine navigation.

NOS Co-hosted MTS Dialogue Sessions, NOS co-hosted two Marine Transportation System (MTS) Regional Dialogue Sessions as part of the ongoing interagency effort to ensure that America's marine transportation system will be able to support the expected large growth in commerce in a safe, environmentally sound. and efficient manner. The sessions highlighted the progress that federal agencies are making toward improving the MTS, and encouraged local and regional MTS stakeholders to become actively involved in modernizing marine transportation.

Coastal Communities

he coastal zone contains some of our nation's most economically valuable, ecologically diverse, and sensitive natural resources. Although this area covers only 17 percent of the U.S. land mass, almost half of the U.S. population lives there, and most of our largest cities are located along the coast. The pressures of increasing population, recreation, and development have fragmented spawning grounds. degraded water quality, and increased the vulnerability of communities to natural hazards. The National Ocean Service (NOS) and its state and local partners are revitalizing waterfronts and industrial sites, reducing damage from natural disasters, and promoting new develop-

Marine Sanctuary Explored. The USS Monitor rests on the seafloor 16 miles off the coast of North Carolina under 240 feet of water, where it sank during a storm in 1862. NOS is involved in a multi-year effort to save what remains of this first U.S. ironclad warship to see battle, NOS' Monitor expeditions began the process of shoring the hull, recovered part of the propeller shaft, and furthered preparations for recovering the Monitor's unique steam engine.

Monitor National

NOS Supported Showcase Communities. NOS provided technical support to several Brownfields Showcase Communities, including Glen Cove, NY; Providence, RI; and East Palo Alto, CA. These

projects demonstrate the positive results of public and private collaboration in addressing brownfields challenges to clean up and reuse underutilized industrial facilities degraded by environmental contamination.

NOS and Partners Created New Mapping Product, NOS partnered with the U.S. Geological Survey on the NOAA-USGS Bathy/Topo/Shoreline Tampa Bay Demonstration Project. The team developed a bathymetric/topographic digital elevation model for the Tampa Bay region. Decision makers will use this map, along with updated shoreline and other geographic tools, to manage coastal resources

State Boundary Updated. At congressional direction, NOS used advanced GPS surveys to redefine a portion of the boundary between Georgia and South Carolina. The boundary from Savannah, GA, to the Atlantic Ocean

along the Savannah River

has not been well defined

since it was established in

1735.

result of

NOS'

NOS Successfully Mediated Coastal Dispute. NOS helped resolve a historic disagreement between Pennsylvania and the Army Corps of Engineers about the fate of dredged material from Conneaut Harbor in Ohio. As a

successful mediation of the monitoring techniques, dispute, 40,000 cubic vards and improve management of dredged material will be of China's 18 marine moved from within the Ohio reserves through partnerships with U.S. marine harbor on Lake Erie to the downdrift side of the breaksanctuaries and estuarine water, which will restore reserves valuable sand to Pennsylvania's shoreline and reduce **NOS Built Coastal**

shoreline and bluff erosion.

Exchanged Expertise.

leagues from China's State

marine management. NOS

apply the Geographic Infor-

mation Systems to coastal

management, introduce

new environmental

Oceanic Administration to

exchange expertise and

ideas on coastal and

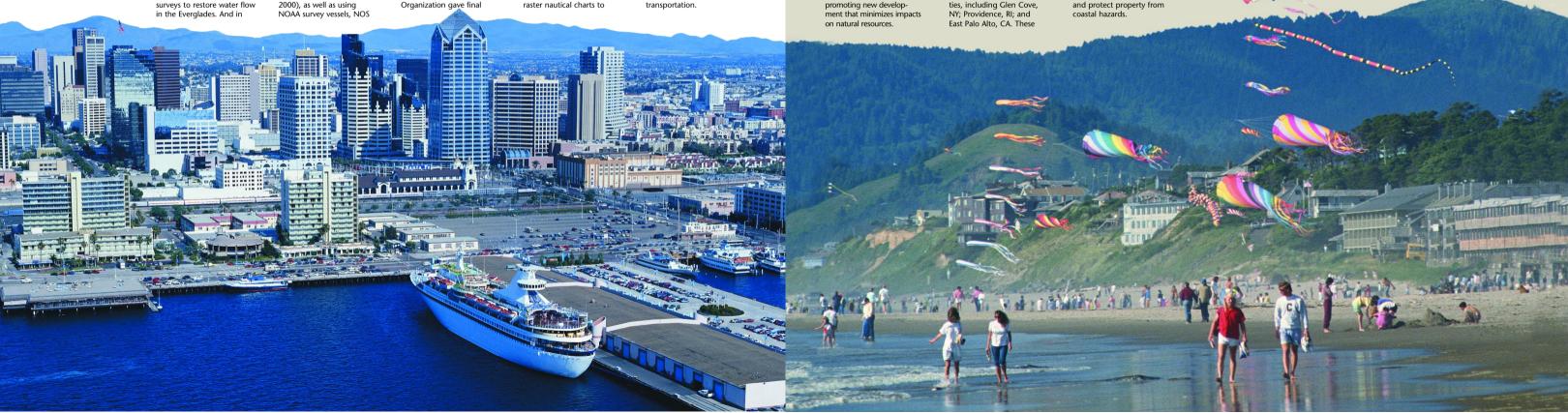
worked with China to

NOS worked with col-

U.S. and China

Management Capabil ity. NOS completed several pilot projects to develop information systems that enable coastal

managers to address issues at the local, state, regional, or national level. These projects provide communities access to information and tools to enhance decision making, and were designed to be easily transferred to other localities.



oastal areas are constantly changing ✓ because of both natural and human forces. Expanding coastal populations and development can threaten the health and survival of plants, animals, and habitats necessary for sustained economic and environmental vitality. The challenge for the National Ocean Service (NOS) and its partners is to increase public understanding and awareness of coastal habitats in order to protect, enhance, and restore these critical areas. Coral reef destruction, harmful algal blooms, coastal "dead" zones, chemical contaminants, human population pressures, climate change, and other threats to marine life will continue to dominate NOS' attention in the vears to come.

Thunder Bay National Marine Sanctuary Designated. The waters of Lake Huron's Thunder Bay were designated as a National Marine Sanctuary and Underwater Preserve in October 2000. The region contains about 160 shipwrecks that span more than a century of Great Lakes maritime history. This sanctuary is the thirteenth in the network of National Marine Sanctuaries and the first in the Great Lakes.

Coral Reefs Conservation Pursued. Coral reefs are the most biologically diverse marine ecosystems on the planet, but pollution, overfishing, dredging, and coastal development threaten these delicate environments. To address these challenges, the U.S. Coral Reef Task Force unveiled the first-ever national action plan to conserve coral reefs. NOS launched critical new efforts as part of this plan to mitigate the

coral crisis, including mapping reefs, monitoring their health, and supporting territorial, state, and local efforts to protect local reefs. NOS also helped remove nine vessels that were grounded in 1991 on the coral reefs of American Samoa and completed a survey of fish habitat in the coral reefs off southwest Puerto Rico to help policymakers determine if the area should be designated a marine protected area.

Tortugas Ecological Reserve Proposed. Located about 70 miles

west of Key West, FL, the Tortugas is home to an exceptionally diverse population of marine life. To preserve this unique. pristine marine ecosystem. NOS' Florida Keys National Marine Sanctuary is coordinating a multi-agency group to establish a 185-squaremile Tortugas Ecological Reserve, NOS sponsored a multidisciplinary group of university and federal scientists on a research cruise to the Tortugas to conduct extensive habitat characterizations of the proposed reserve.

NOS Responded to **Spills.** NOS responded to

calls for assistance for more than 100 spills of oil and chemicals into the nation's coastal waters. In one incident in Maryland, a pipeline ruptured, releasing about 126,000 gallons of oil into surrounding marshes. Swanson's Creek, and the Patuxent River, NOS and other natural resource trustees worked with the pipeline owner to respond to and assess the damaged coastal resources. NOS and its NOAA partners also closed six cases, recovering funds for restoration of injured resources. Included was a large settlement for the 1996 North Cape oil spill off Rhode Island, where over one million lobsters

will be restocked and \$8 million will be provided to restore other natural resources. **Gulf of Mexico**

Hypoxia Studies Con-

tinued. NOS provided

support for mapping the

hypoxic, or "dead" zone

Each summer, nutrient dis-

charge from the Mississippi

off the Louisiana coast.

River causes a zone of

oxygen-depleted water to programs through events develop off the Louisiana in all of the National coast in the middle of a Marine Sanctuaries. critical commercial and recreational fishery, NOS led its partners in efforts to complete the national plan Areas (WCPA). NOS to reduce, mitigate, and control hypoxia in the Gulf. chairs the "Marine Program" of the WCPA, the a global strategy that

Four Nonpoint Pollu-

tion Control Programs Approved. NOS and the Environmental Protection Agency approved Coastal Nonpoint Pollution Programs for Maryland. Rhode Island, California, and Puerto Rico. These programs strengthen links between federal and state/territory coastal management and water quality efforts to mitigate the effects of land management activities that degrade coastal habitats.

Sustainable Seas **Explored Hawaii and** More. The Sustainable Seas Expeditions (SSE) is a five-year project using advanced undersea technology to explore the

marine environment and increase public awareness of marine sanctuaries. In 2000. SSE missions took place at four National Marine Sanctuaries: Hawaiian Islands Humpback Whale, Channel Islands Monterey Bay, and the Florida Keys, as well as across the West Florida Shelf, Exploration and research activities were tied to education and outreach

NOS Provided Leadership to World Commission on Protected world's largest network of protected-area specialists. NOS helped WCPA develop focuses on the relationships

among marine protected areas and sustainable fisheries, coastal tourism, and integrated coastal management, NOS also developed a new website for the WCPA and guidelines to evaluate the effectiveness of marine protected areas

NOS Assisted at High-

Priority Waste and Restoration Sites, NOS provided intensive technical support at several highpriority waste sites. This effort included securing a comprehensive settlement at the Tex-Tin site in Texas. which will result in the cleanup and creation of nearly 100 acres of wetlands to benefit fish and shellfish. In an important restoration project, 20 vears of NOS-supported research on the marshes of California's Tijuana River estuary began to pay dividends with the completion of a 20-acre marsh restoration project—the first step to restore 500 acres of the Tijuana River estuary.

ence a Success. In

of derelict fishing gear

response to growing con-

washing ashore on remote

beaches and coral reefs.

Islands Humpback Whale

sanctuary, working with

NOAA Fisheries and the

Conference in Hawaii. The

conference covered policy

and legal issues, source

identification, impacts of

marine debris, industry

considerations, and outreach efforts to deal with

this unique threat to the marine environment.

NOS and its Hawaiian

Alaska Air Flight 261 Crash. In January, NOS Marine Debris Conferactivated its Incident Response Plan following the crash of Alaska Airlines cern over the large volume Flight 261 into the waters of the Channel Islands National Marine Sanctuary NOS staff supported the U.S. Coast Guard, U.S. Navy, and National Transportation Safety Board in the search operation by State of Hawaii, hosted the providing trajectory map-International Marine Debris ping for debris, detailed bathymetry and resource maps, potential obstruction data, and on-the-water recovery and logistical support.

> **Coastal Erosion** Hazards Evaluated. NOS worked with the Oregon Department of Land Conservation and Development to create a computerized dune erosion modeling program that will assist

mate to improve storm

prediction and warning sys-

tems. NOS also establishes

coastal preparedness plans.

educates the public about

coastal hazards, and devel-

ops tools such as Geographic

Information Systems to help

communities plan for and

respond to coastal hazards.

NOS Responded to

Coastal Hazards

torms batter coastal managers in making deciareas with high sions related to coastal erowinds, huge waves, sion. In partnership with and storm surges that the Washington Departthreaten human communiment of Ecology, NOS ties and natural habitats. enhanced this tool by The National Ocean Service adding Airborne Topo-(NOS) works to find graphic Mapping Light innovative ways to provide Detection and Ranging information, tools, and data. The resulting cuttingtechniques that will reduce edge technology, called the the vulnerability of commu-Dune Hazard Assessment nities to storms, tsunamis, Tool, will help coastal manharmful algal blooms, fish agers identify risks from kills, marine mammal coastal erosion. strandings, and other coastal hazards. For exam-NOS Responded to Sea Turtle Threats. ple, NOS, NOAA's National Weather Service, and other federal and state partners are studying the Earth's cli-

Although sea turtles have

existed for over 100 million years, all species of sea turtles found in U.S. waters today are listed as endangered or threatened. We do not vet understand all the threats, so when more than 200 turtles washed ashore on the Outer Banks of North Carolina in May. NOS scientists were sent to study the carcasses. NOS also worked with the Puerto Rico Department of Natural and Environmental Resources on a major project to assess the status of that region's green turtle population.

activities, which will continue through 2001, included efforts to improve survey networks and tide stations, disaster preparedness, environmental assessment, and aquaculture.

Central America. Hurricane Mitch struck Central America in October 1998. destroying villages, disrupting infrastructure, releasing contaminants, and killing thousands of people, NOS is a critical part of the Department of Commerce team assisting the rebuild-

NOS Aided Hurricane

Mitch Recovery in

Work Continued on Forecasting Harmful Algal Blooms. Harmful algal blooms, such as "red tides," are toxic growths of phytoplankton and other algae that can harm or kill

fish, birds, sea mammals, and even humans, NOS worked to detect and forecast the occurrence of harmful algal events, NOS made progress identifying Pfiesteria's mechanisms of toxicity and its effects on humans and fish in coastal waters from Delaware to North Carolina.



rganization & Culture

he National Ocean Service (NOS) promotes the evolution of a more inclusive, internal corporate culture that is science-based, service-oriented, and responsive and adaptive to change. To make progress in any of its programmatic areas of responsibility, NOS must have a strong, effective workforce and new ways to reach its customers and constituents. Toward this end. NOS is promoting educational opportunities for its current and future employees and is breaking down institutional barriers to their intellectual and professional growth.

Support to Coastal States Streamlined.

Application and Reporting System was widely used in its first operational year. Seventy-five percent of the coastal states and territories submitted grants using the new. Internet-based system, which provides timely funding to the states, gives the public easy access to grant expenditures, and supports program management and analysis.

Marine Research Laboratory "Topped

Out." In June, the traditional evergreen was hoisted to the rooftop of the Marine Environmental Health Research Laboratory in Charleston, SC, commemorating completion of

NOS' award-winning Grant

ver Spring, MD, campus to participate in the annual Bring a Child to Work Day. Children chose from a number of interactive workshops covering such topics as weather forecasting, satellite imagery, hydrographic surveying, and marine life, or they spent the day learning

the steel structure. This multi-agency project is a partnership formed by NOS, the National Institute

of Standards and Technology, the South Carolina Department of Natural Resources, the University of Charleston, and the Medmission, a tour of NOS ical University of South headquarters, and assign-Carolina. The lab should ment of a "buddy" to help become operational in the answer questions. spring of 2001.

Bring a Child to Work Day Expanded, Four hundred children, ages 4 to 17, came to NOAA's Sil-

NOAA partners were presented with a U.S. Coast Guard Unit commendation for their participation in the search for and recovery of John F. Kennedy, Ir.'s downed aircraft in July 1999. The team that responded to the October 1999 crash of Egypt Air Flight 990 was also recognized for superior public service. what their parents do at NOS Received Two

for New Employees Expanded, NOS improved its new employee orientation program by providing incoming employees with detailed information on the NOS

NOS Commended

Response, NOS and its

for IFK/Egypt Air

Hammer Awards.

ter received a National

Government Hammer

NOS' Coastal Services Cen-

Partnership for Reinventing

Award for its work on the

Orientation Program

Tillamook County, OR, Performance Indicators Visualization and Outreach Tool project. The Tijuana River. CA. Watershed National Spatial Data Infrastructure Community Demonstration Project also received a Hammer Award for a project focused on developing a flood risk assessment for the Tijuana River National Estuarine Research Reserve.

CSC Magazine Wins Blue Pencil Award

ter's bimonthly magazine Coastal Services took first place in the articles category for its January/February 1999 cover article entitled "Gambling with the Environment" at the 1999 National Association of Government Communicators Blue Pencil Awards Competition

This year NOAA, the parent agency of NOS, celebrated its 30th anniversary. NOS participated in the year-long celebration with a variety of events.

NOS Celebrates OpSail 2000®. The maritime community celebrated the millennium and our country's 224th birthday with the largest tall ship event in history, Operation Sail 2000°, and the International Naval Review. NOS joined in the celebration by producing a commemorative nautical chart depicting the eight ports of call for OpSail 2000®, and supplying the tall ships with critical, real-time navigation data from the

Sanctuary Anniversaries. NOS is the trustee for 13 marine protected areas known as National Marine Sanctuaries, which are akin to national underwater parks. Three of these sanctuaries celebrated milestones Sanctuaries celebrated their 25th anniversaries, and the Channel Islands National Marine Sanctuary celebrated

Dr. Nancy Foster Florida Keys Environmental Center Dedicated

On April 26, 2000, NOAA and the National Ocean Service dedicated the Dr. Nancy Foster Florida Keys Environmental Center in Key West, FL, in honor of Dr. Foster's enormous contributions and lifetime commitment to our nation's coasts and oceans. The multi-use Center, which features the Florida Keys Sanctuary, will house laboratory space and provide waterfront access for research vessels, a diving locker, and office space. But most of all, the Center is a gathering place for scientists who work on some of our country's most important mandates: environmental protection, marine safety and rescue, and coastal stewardship. Dr. Foster was a pioneer in coastal stewardship, and the essence of her work and leadership will forever be a part of the Center. Dr. Foster passed away on June 27, 2000.

NOS' Coastal Services Cen-

NOAA's 30th Anniversary

Chesapeake Bay PORTS™ Lite.

this year: the Monitor and Florida Keys National Marine its 10th.

National Ocean Service at a Glance

We value your interest, questions, and comments. Please feel free to contact us.

National Oceanic and Atmospheric Administration National Ocean Service 1305 East-West Highway Silver Spring, MD 20910 (301) 713-3074 www.nos.noaa.gov

Public Affairs/Communications (301) 713-3066 (301) 713-3070

Coastal Services Center (843) 740-1200 www.csc.noaa.gov

Located in Charleston, SC, the Coastal Services Center is NOS' linchpin for bringing new technology, training, and information to coastal resource managers throughout the country. Many of the products and services provided by the Center would otherwise be unattainable for most local and state coastal programs. With the Center's help, managers have the skills, data, and information they need to do the best job possible.

National Centers for **Coastal Ocean Science** (301) 713-3060 www.nccos.noaa.gov

Coastal stewardship means solving the problems of today, while better planning for the future. Scientists at the National Centers for Coastal Ocean Science study, monitor, and assess both natural and human impacts on coastal ecosystems—giving our nation the information and, ultimately, the understanding needed to be better coastal stewards. The NOS Science Office oversees laboratories in Charleston, SC; Beaufort, NC: and Oxford, MD.

Office of Coast Survey chartmaker.ncd.noaa.gov (301) 713-2770

Navigating ships and boats safely in and out of ports and along our coasts requires accurate nautical charts. In many of our busiest waterwavs, unknown rocks, wrecks, and obstructions wait below the surface to be "discovered" by unfortunate mariners. The Office of Coast Survey provides a wide range of navigational products and up-to-the-minute data that help vessels safely move through U.S. waters.

National Geodetic Survey (301) 713-3222 www.ngs.noaa.gov

The National Geodetic Survey's time-tested survey expertise is the foundation for measuring the size, shape, and height of our nation's entire land area. National Geodetic Survey data comprise the National Spatial Reference System, a set of standard reference points that provide the latitude, longitude, and elevation framework necessary for the nation's land surveying, navigation, positioning, and mapping activities.

Office of Ocean and Coastal Resource Management (301) 713-3155 www.ocrm.nos.noaa.gov

Managing our nation's 95,000 miles of coastline is a daunting task. The Office of Ocean and Coastal Resource Management (OCRM) provides the national policy leadership and conflict resolution necessary to maintain our nation's valuable coastal resources. Additionally, OCRM is responsible for administering the Coastal Zone Management Act and assisting individual states in managing the system of national estuarine research reserves.

Office of Response and Restoration (301) 713-3038

response.restoration.noaa.gov

Oil spills, hazardous material releases, vessel groundings, and fierce storms assault our nation's coast's on a daily basis. The Office of Response and Restoration (OR&R) is the focal point within NOAA for preventing, planning for, and responding to these disasters. On behalf of the public. OR&R and its partners protect and restore coastal resources through the application of science and technology. OR&R provides communities with training, guidance, and the decision-making tools that will help improve the health of our coasts.

Staff Office for International Programs (301) 713-3078 www.nos.noaa.gov/ipo

Recognizing that the challenges to our nation's coastal environment are global problems too, the Staff Office for International Programs works to build partnerships with other countries to share information and lessons learned in coastal management.

Office of National Marine Sanctuaries (301) 713-3125

www.sanctuaries.nos.noaa.gov

Marine sanctuaries form a network of protected areas that are both environmentally and culturally important to our nation. They provide habitat for creatures and plants of the sea, and serve as living laboratories for the study of coastal and ocean environments. There are currently 13 marine sanctuaries in the national system.

Special Projects Office (301) 713-3000 spo.nos.noaa.gov

The nature of NOS' work is highly technical and scientific, and the issues NOS must deal with are complex. NOS relies on the expertise of the Special Projects Office for the tools, products, and guidance to be successful and remain on the cutting edge of coastal management.

Management and Budget Office (301) 713-3056 www.nos.noaa.gov

The Management and Budget Office provides leadership in procurement, budget, strategic planning, policy development, human resources, information technology, safety and security, and other administrative and management areas.

